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Resilient Dwellers: The Urban Poor in Latin America and the Caribbean, Vulnerability to Natural Disasters, and the Encroach of Climate Change

After two small earthquakes in Equador, the residents of a village of 300 were told to reinforce their homes five different ways using resources they didn't have by organizations who were seeking to achieve different goals. It was 1990 in the years when Latin America was emerging from the 'lost decade,' a time when many countries were unable to repay their foreign debts and their economies spiked in inflation. This was concurrent with a period of mass migration from rural areas to cities, during which time many millions of people who were unable to secure formal residency in cities unprepared for their numbers settled around the outskirts in small, closely packed dwellings. With governmental support disorganized or lacking and struggling to stay afloat in poor economic times, disasters were a major risk to people in these informal settlements and remain so today. Poor residents of urban and rural informal dwellings, though resilient, have been disproportionately exposed to and victimized by natural disasters because of the systemic governmental neglect, socioeconomic marginalization, and unsafe conditions created by the rapid urbanization of the late 20th century, issues which continue to perpetuate cycles of inequality and risk and make them the primary victims of climate change in Latin America and the Caribbean.

The definition and use of the term 'resilience' in the context of the effects of natural disasters and climate change on urban populations holds prime importance for discussion and analysis of those issues. Resilience is linked with cultural diversity, equity, and sustainability in the history of

Latin American and Caribbean people. According to Michael Turner and Rachel Singer's "Urban Resilience in Climate Change," resilience is a process utilized by communities combining resistance, recovery, and creativity in the face of hardships they endure. Resistance "refers to the magnitude of disruption that can be absorbed by a community before undergoing significant changes"; recovery "can be measured as the time needed to rebound to levels similar to those before the disaster"; and creativity is a defining force in the ability of a community to buoy themselves and return to "the previous state of equilibrium post disaster… in the process of continuing change…", as well as learn from the process of withstanding disastrous events.[1] Turner and Singer argue that while urban communities absorb and suffer from the shocks of natural disasters, they also stand to gain opportunities from them to reform their central processes and ways of being, regulating themselves to their changing environments. This is not to say that indigent communities are sufficiently prepared for disasters, but rather that any disastrous effects felt by a community are not steps backwards, reverting them to a more unsophisticated way of living, but irreversible errors from which feedback is drawn to reach a new and more informed equilibrium.[2] Viewed in this way, the process by which indigent residents of Latin America and the Caribbean experience and respond to disasters is a matter of planning and design, reaching thresholds previously not able to be accounted for by previous models of resilience. In

[1] Turner, Michael, and Rachel Singer. "Urban Resilience in Climate Change." 65.
[2] Turner and Singer, 67-69. Drawing from the 'Control by Error' diagrams in figures 1, 2, and 3, and their italicized captions.

other words: the victims of disasters and climate change that will be the subject of following analysis act in novel ways to remain resilient to their circumstances. While governments certainly must take responsibility for their role in assisting communities in mitigating, adapting to, and recovering from disasters, the communities have long survived without those aids, remaining resilient to disasters by utilizing and adapting traditional knowledge systems in situations that those governments have been against them. The question of this argument is whether their governments are exercising their powers today to the degree to which they should in order to prevent future hardship and loss.

Much of the population of Latin America dwells in informal settlements, referred to disparagingly as slums, which are neglected by the governments of 'formal' urban centers, exposing the urban poor to heightened disaster. According to urban development scholars Vicente Sandoval and Juan Pablo Sarmiento, who investigated the issue consulting for the UN, nearly 105 million Latin Americans dwell in informal settlements such as *favelas* in Brazil and *tugurios* in Cuba, where they are deprived of access to potable water and sanitary surroundings, crowded in structurally unstable dwellings, and insecure in their tenure.[3] Residents of informal settlements comprise about 20% of the population of Latin America. Informal settlements are "characterized by widespread poverty, large agglomeration of houses in poor conditions, often located in disaster-

[3] Sandoval, Vicente, and Juan P. Sarmiento. "A neglected issue: informal settlements, urban development, and disaster risk reduction in Latin America and the Caribbean." 733.

prone areas, residents tend to have limited access to public space and green areas, and are constantly exposed to eviction, disease and violence."[4] The authors identified that a significant number of informal settlements cropped up in the vicinity of cities between the 1950s and 1970s as a result of mass rural-to-urban migration and weak governmental capacity, and that since then, the inhabitants of informal settlements "are not only economically and socially marginalized but also ignored in general by the city's public policies, which tend to be designed and executed for the 'formal' and established population, before and after disasters."[5] Sandoval and Sarmiento drew the connection between public policy, the conditions of informal settlements, and preparedness for natural disasters to conclude that the government of every country they studied spoke of introducing new welfare programs but did not mention or plan for infrastructure to prepare informal settlements for disasters and disaster recovery, marginalizing the urban poor from measures that 'formal' inhabitants would benefit from. Neglect and lack of recognition by the government exposes poor urban residents of informal settlements disproportionately to disasters.

The United Nations 2023 report on disasters in Latin America and the Caribbean from the year 2000 onwards establishes environmental, economic, and social issues as factors of disaster preparedness among the urban poor. Nahuel Arenas García, Chief of the United Nations Office for Disaster Risk Reduction, stated that among the risk factors for the "more

[4] Sandoval and Sarmiento, 733.
[5] Sandoval and Sarmiento, 737.

than 190 million people" affected by disasters in Latin America and the Caribbean are "Economic crises, growing inequality and exclusion… [and] chaotic urbanization patterns…", matching Sandoval and Sarmiento's analysis, but also included "…the indiscriminate exploitation of natural resources and environmental degradation…"[6] Later, the report listed climate change as a risk driver of disaster vulnerability for the region and said that "over 17 million people in Latin America could be forced to migrate to escape the impacts of slow-onset climate change."[7] The report also cited the interconnectedness of health systems, infrastructure systems, and the economy as risk factors, speaking of the cascading and compounding effects of disasters and crises between systems. While there is no direct discussion of the disproportionate impact of disasters on informal settlements, the images of disaster aftermaths present in the document depict homes made of reclaimed metals and hand-cut and nailed wood placed on the outskirts of urban areas, with affected people pictured as farmers, barefoot children, and residents clearing their own debris, and no presence of emergency services; these images reinforce Sandoval and Sarmiento's narrative of poor and abandoned people falling victim to disasters. Overall, the 2023 UN report serves as evidence that climate change, economic failures, and other contemporary problems compound the effects of natural disasters and specifically affect the urban poor living in informal settlements in Latin America and the Caribbean.

[6] UN Office for Disaster Risk Reduction. "Overview of Disasters in Latin America and the Caribbean 2000-2022." 4.
[7] UN Office for Disaster Risk Reduction, 9.

Late and disorganized institutional responses to disasters reinforce poor preparedness and distrust in institutions while creating cycles of dependency on those institutions. In the article “Disaster Aid: Equity First,” presented by Eric Dudley at the 1990 'Disasters and Small Dwelling' conference held at Oxford Polytechnic, Dudley cited his study of the responses of the government and five institutions to two earthquakes in March 1987. He described the “cadre of experienced architects and engineers” (read with a biting tone) that came to the village of Mariano Acosta in the second wave of aid disbursed to rural communities five months after the earthquakes.[8] They arrived to a “problematic conjunction” of five institutions all running disparate responses: the Ministry of Social Welfare, the Red Cross, the church, FICI, and FUNHABIT (the latter two being regional non-governmental aid organizations). As well as being “wasteful duplication of effort,” the lack of interplay between these groups presented the village’s 300 residents with five different solutions to structural instability problems, some of which were too expensive for the village to realistically afford and others which were unsafe for a variety of reasons. The villagers began adopting erroneous techniques in their dependence on the ‘experts,’ creating dependency on those organizations and the government among people who had long been working towards a “sense of self-determination… [after] struggling to recover from five hundred years of serfdom on the large *haciendas*.”[9] While it is true that

[8] Dudley, Eric. “Disaster Aid: Equity First.” 151.
[9] Dudley, 152-153.

since 1990 the ability for organizations to communicate and create developmental balance has improved, the issue of dependency remains. For material aid to be rendered equitably to communities recovering from disasters, it should be dispensed equitably in an organized way as to give those communities tools to use their own resources to be resilient.

The most urgent risk posed to urban residents is that due to the rapid urbanization of the largest cities of the region, large numbers of people are situated in areas already experiencing the effects of climate change, which makes them the most vulnerable members of society to climate change in the future. In their article “Urban poverty and vulnerability to climate change in Latin America,” Jorgelina Hardoy and Gustavo Pandiella first revealed two more critical vulnerabilities that the urban poor living in informal settlements have to disasters and climate change: many people living in dangerous sites “lack the resources and options to modify their vulnerability” and “climate change contributes to constraints on freshwater supplies.”[10] The authors asserted that historical data about victims of disasters, though limited, can be used to determine who the likely victims of disasters will be in the future.[11] This principle can be transferred to climate change. Those who are experiencing it today will be the primary victims as it progresses in severity. Hardoy and Pandiella qualified their position that the urban poor are the most vulnerable to climate change in several points:

[10] Hardoy, Jorgelina, and Gustavo Pandiella. “Urban poverty and vulnerability to climate change in Latin America.” 204.
[11] Hardoy and Pandiella, 205.

the urban poor live in locations most exposed to the direct and indirect effects of climate change; those locations lack infrastructure that reduce risk; they lack the knowledge, capacity, and opportunity to limit short-term impacts; and after the damage is done, they lack the ability to recoup and cope effectively.[12] The authors echoed the UN's fears of mass emigration from floodplains in Latin America as climate change increases flooding in areas where cities are already misplaced, such was the case in the city of Santa Fe in Argentina, one-third of which was swallowed up by the Río Salado floodplain in 2003, causing 23 deaths, disease outbreaks, untold economic losses, and the displacement of 139,886 people.[13] Poor urban residents of informal settlements live where natural disasters have the greatest effect because of rapid and unplanned urbanization, making them the most vulnerable portion of the population to the current and future consequences of climate change.

The compounding effects of the lost decade displaced one-fifth of the population of Latin America and the Caribbean into informal settlements surrounding urban centers which did not have the capacity to support them, leading to those communities living in unsafe conditions that continue to expose them to disasters and climate change, stuck in cycles of dependency on government and institutions that never seem to quite be able to give them the support they need to mobilize economically out of these positions. The efforts of those countries' governments, the United Nations, and

[12] Hardoy and Pandiella, 206.
[13] Hardoy and Pandiella, 207.

humanitarian organizations continue to be centered around expanding the dimensions through which disasters and climate change are addressed in these populations, fortifying the infrastructure and resilience models of informal settlements, and educating vulnerable populations on the correct steps to take for disaster preparedness and resilience. Latin America and the Caribbean are disaster-prone regions, but with equal reliance on continually adapting traditional knowledge systems and increasing governmental and institutional capacity to address the material loss and social disorder caused by disaster, people can become more resilient to disasters and perhaps develop solutions to weather and reduce climate change before it causes another series of damaging migrations.

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